



COMMUNITY
COORDINATED
MODELING
CENTER

Integrated Space Weather Analysis System

Science and Engineering Student Internship

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Space Weather Laboratory/Community Coordinated Modeling Center

<http://iswa.gsfc.nasa.gov> • <http://ccmc.gsfc.nasa.gov>

Special thanks to Marlo Maddox, David Berrios, and Richard Mullinix

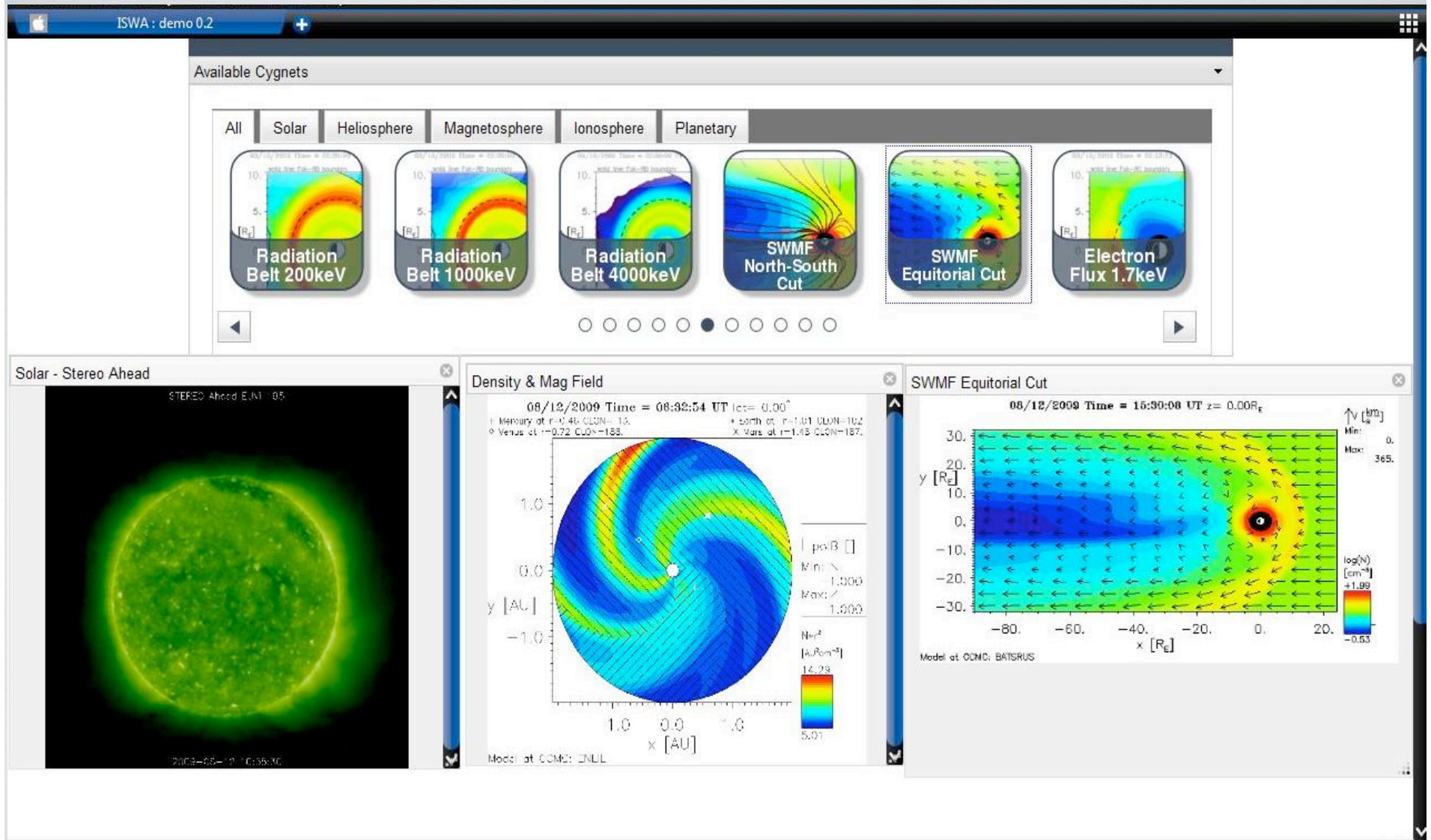
Overview

- Background / Purpose
- Objective
- Quick Demo
- Design
- Conclusion / Extras

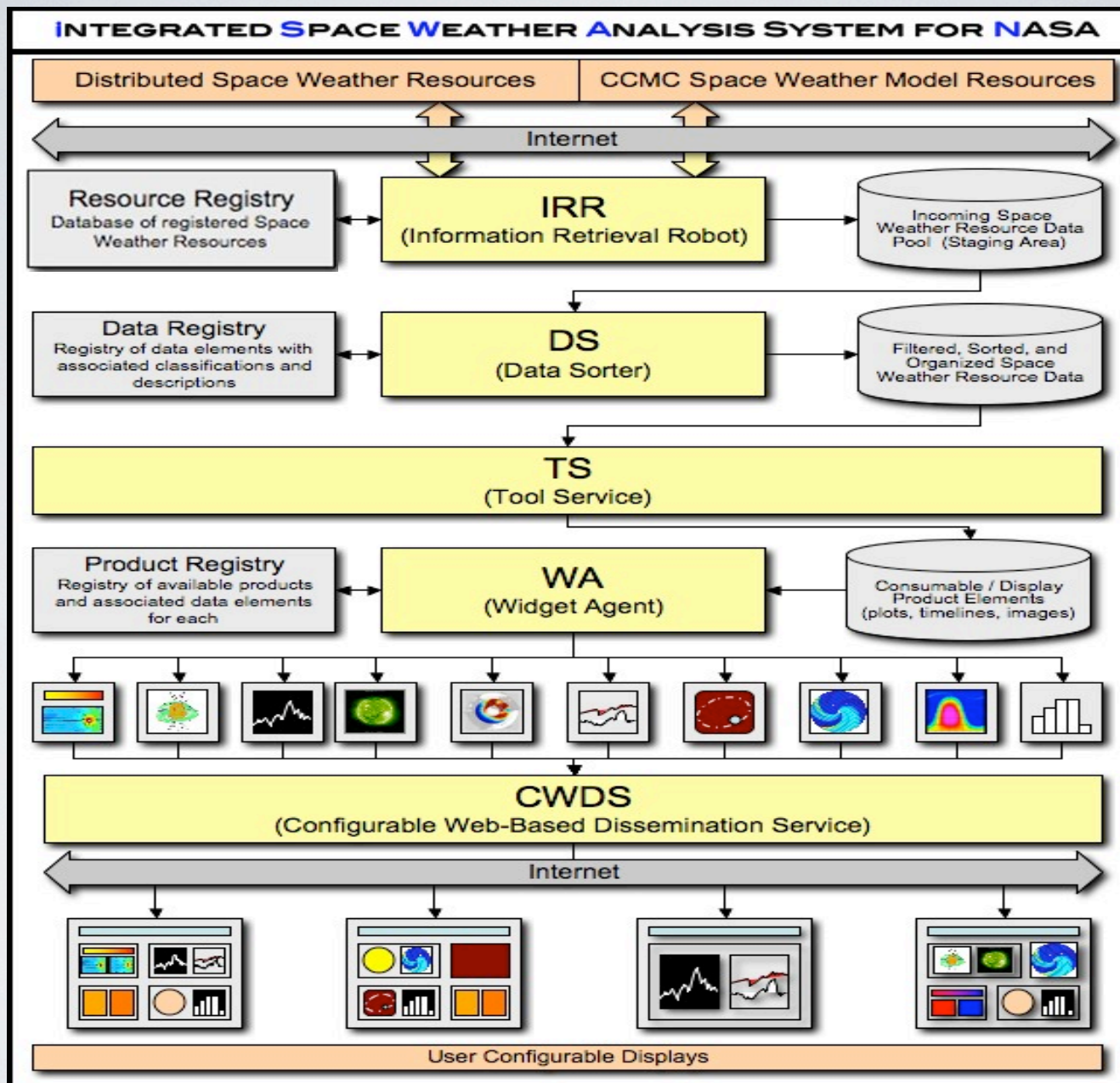
Problems

- Space weather resources are diverse and scattered
- Need for easily accessible, understandable and useful data products
- Need for accurate real time nowcasting/forecasting of the space environment
- Need for historical space weather impact analysis

iSWA



Background • Objective • Demo • Design • Conclusion



Background • Objective • Demo • Design • Conclusion

iswa_database_dev.Resource						
Where:						
	R..	Resourc...	ResourceDescription	R..	ResourceWebSite	ResourcePo... ResourcePOCEmail
1	1	CCMC	Community Coordinated Modeling ...	3	http://ccmc.gsfc.nasa...	Marlo Maddox Marlo.Maddox@Nasa.gov
2	2	CASS	Center for Atmospheric and Spa...	1	http://www.usu.edu/c...	
3	3	SWPC	NOAA Space Weather Prediction C...	1	http://swpc.noaa.gov	SWPC.Webmaster@noaa.gov
4	4	SOHO	SOHO NASCOM Website	1	http://sohowww.nasco...	
5	5	SDAC	Solar Data Analysis Center	1	http://umbra.nascom....	Joseph B. ... joseph.b.gurman@nasa.gov
6	6	STEREO	STEREO Space weather beacon	2	http://stereo-ssc.na...	Joseph B. ... joseph.b.gurman@nasa.gov
7	7	WDC	World Data Center for Geomagnetism	1	http://swdcwww.kugi....	iyemori@kugi.kyoto-u.ac.jp
8	8	CAITECH	Missal Caltech STEREO orbit data	1	ftp://missal-exl.cal	

iswa_database_dev.Machine			
Where:			
	MachineID	MachineHostName	ResourceID
1	1	iswa	1
2	2	gaim.cass.usu.edu	2
3	3	uhurul.ccmc.gsfc.nasa.gov	1
4	4	swpc.noaa.gov	3
5	5	sohowww.nascom.nasa.gov	4
6	6	umbra.nascom.nasa.gov	5
7	7	stereo-ssc.nascom.nasa.gov	6
8	8	swdcwww.kugi.kyoto-u.ac.jp	7
9	9	ins.ucsd.edu	9

iswa_database_dev.Data									
Where:									
	DataID	DataDescription	DataFileName	Mode	DataLastUpdateTime	Dat...	L..	L...	Loca... LocalDataFil
25	25	Synoptic forecast of the solar...	synoptic_v_movi...	active	2009-07-23 16:35:48	3600	-	4	synoptic_v_r
26	26	Time series of solar wind dens...	earth_insitu_n.png	active	2009-07-23 16:35:48	3600	-	4	earth_insitu
27	27	Time series of solar wind velo...	earth_insitu_v.png	active	2009-07-23 16:35:49	3600	-	4	earth_insitu
28	28	SOHO LASCO C2 images	<yyyymmdd>_<\d>...	test	2009-07-23 16:36:00	1800	-	1	<yyyymmdd>_<
29	29	SOHO LASCO C3 images	<yyyymmdd>_<\d>...	test	2009-07-23 16:36:09	1800	-	1	<yyyymmdd>_<
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31	31	GOES G12	<yyyymmdd>_G12m...	ignore	2009-03-20 00:00:00	43200	-	1	<yyyymmdd>_<
32	32	STEREO ahead euvi 171	<yyyymmdd>_<\d>...	active	2009-07-23 16:36:10	1200	-	1	<yyyymmdd>_<
33	33	STEREO ahead euvi 195	<yyyymmdd>_<\d>...	active	2009-07-23 16:36:11	1200	-	1	<yyyymmdd>_<
34	34	STEREO ahead euvi 284	<yyyymmdd>_<\d>...	active	2009-07-23 16:36:12	1200	-	1	<yyyymmdd>_<

Background • Objective • Demo • Design • Conclusion

Working with the Database

- Install development environment and necessary plug-ins
- Create necessary connections
- Switch between a browser and the dev environment while data hunting
- Manually adding all data fields in tables
- Tedious

Goal

- Functional
- User-friendly
- Intuitive
- Easy on the eyes

Utilities

Working environment:

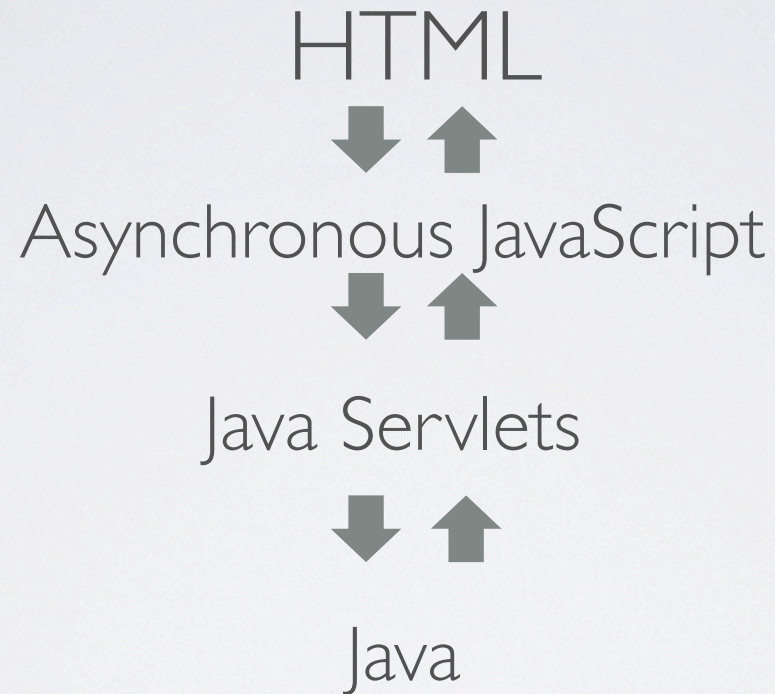
Eclipse Ganymede Enterprise Edition

Plug-ins: DB Viewer, CVS

Frameworks/Toolkits

- Prototype
- Scriptaculous
- Dojo
- MySQL
- Java
- AJAX
- JSP
- Java Servlets
- Apache Tomcat

Overall Design





Conclusion

- increased understanding of web-based processing
- will have a functional product by the end of my internship
- exposure to better programming design
- experience working closely with a diverse group